

CLAIMS

What is claimed is:

1. A transfer case comprising:
 - a one-piece housing defining first and second apertures aligned on a first axis and a third aperture aligned on a second axis;
 - a first cover plate enclosing said first aperture and defining a first opening;
 - a second cover plate enclosing said third aperture and defining a second opening;
 - an input shaft extending through said first opening;
 - a first tubular output shaft driven by said input shaft and having a small diameter pilot segment supported by said input shaft, a large diameter shaft segment extending through said second aperture, and a transition segment interconnecting said pilot segment and said shaft segment;
 - a second tubular output shaft having a pilot segment supported by said housing and a shaft segment extending through said second opening; and
 - a coupling mechanism for selectively coupling said second output shaft to said first output shaft.

2. The transfer case of Claim 1 wherein said first cover plate includes a plate segment interconnecting first and second hub segments, said first opening in said first cover plate extending through said first hub segment, and wherein said second hub segment is sealed against said one-piece housing.

3. The transfer case of Claim 1 wherein said first and second tubular output shafts each comprise a formed tube having a metallurgical grain structure that is generally continuous.

4. The transfer case of Claim 1 wherein said first output shaft is formed to include a tapered transition segment interconnecting said pilot segment to said shaft segment.

5. The transfer case of Claim 1 wherein said coupling mechanism includes a first sprocket that is rotatable relative to said shaft segment of said first output shaft, a second sprocket fixed to said shaft segment of said second output shaft, a chain for coupling said second sprocket to said first sprocket, and a mode clutch operable for selectively coupling said first sprocket to said first output shaft.

6. The transfer case of Claim 1 wherein said first axis is parallel to said second axis.

7. A transfer case comprising:
 - a one-piece housing defining first and second apertures aligned on a first axis and a third aperture and a boss portion aligned on a second axis;
 - a first cover plate enclosing said first aperture and defining a first opening;
 - a second cover plate enclosing said third aperture and defining a second opening;
 - an input shaft extending through said first opening;
 - a first tubular output shaft having a first diameter pilot segment supported by said input shaft, a second diameter shaft segment extending through said second aperture, and a variable diameter transition segment interconnecting said pilot segment and said shaft segment;
 - a second tubular output shaft having a pilot segment supported in said boss portion of said housing and a shaft segment extending through said second opening;
 - and
 - a coupling mechanism for selectively coupling said second output shaft to said first output shaft.

8. The transfer case of Claim 7 wherein said first cover plate includes a plate segment interconnecting first and second cylindrical hub segments, said first opening in said first cover plate extends through said first hub segment, and wherein said second hub segment is sealed against said one-piece housing.

9. The transfer case of Claim 7 wherein said coupling mechanism includes a first sprocket rotatable relative to said shaft segment of said first output shaft, a second sprocket associated with said shaft segment of said second output shaft, a chain for coupling said second sprocket to said first sprocket, and a mode clutch operable for selectively coupling said first sprocket to said first output shaft.

10. The transfer case of Claim 9 wherein said second sprocket is formed as a sprocket segment on said second output shaft between said pilot segment and said shaft segment.